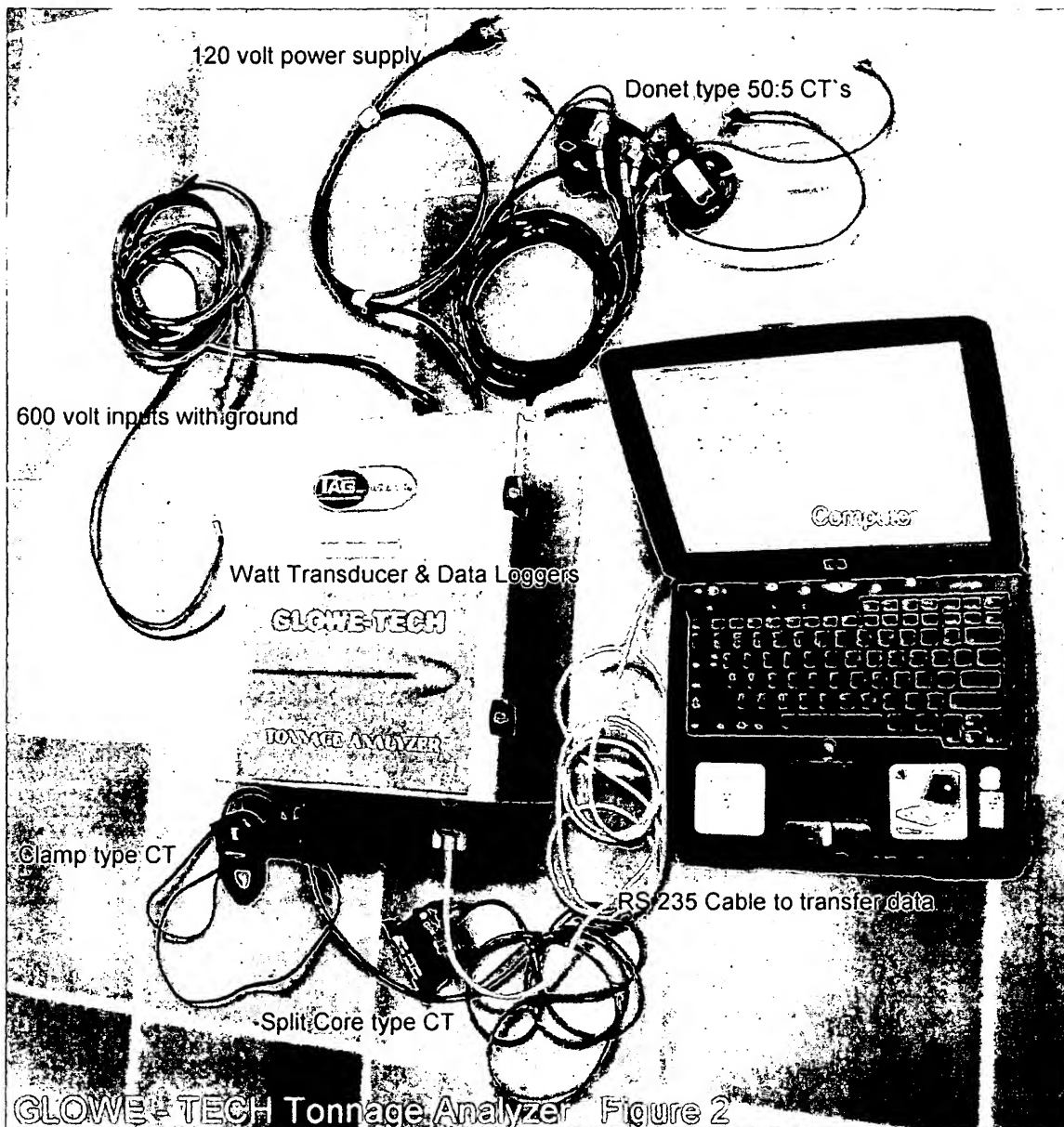


FIGURE 1

Typical set-up with computer recording live data converted to tonnage with belt scale monitor (top unit) showing actual tonnage moving over conveyor

FIGURE: 2



- Item 1: 600 volt input wires for line 1, 2 & 3 for watt transducer & ground wire
- Item 2: Donut type 50:5 CT's for current input to watt transducer
- Item 3: 120 volt power supply wire for watt transducer
- Item 4: Clamp type CT for ampere method to collect data for tonnage conversion
- Item 5: Split-Core CT for ampere method to collect data for tonnage conversion
- Item 6: Instrument case with Watt Transducer installed
- Item 7: Instrument case with ACR Data logger installed
- Item 8: RS235 Cable to transfer data to computer
- Item 9: Lap-top computer to collect data
- Item 10: Screen showing live data and for display of Real-Time graph of data in Tonnes converted from kilowatts or amps

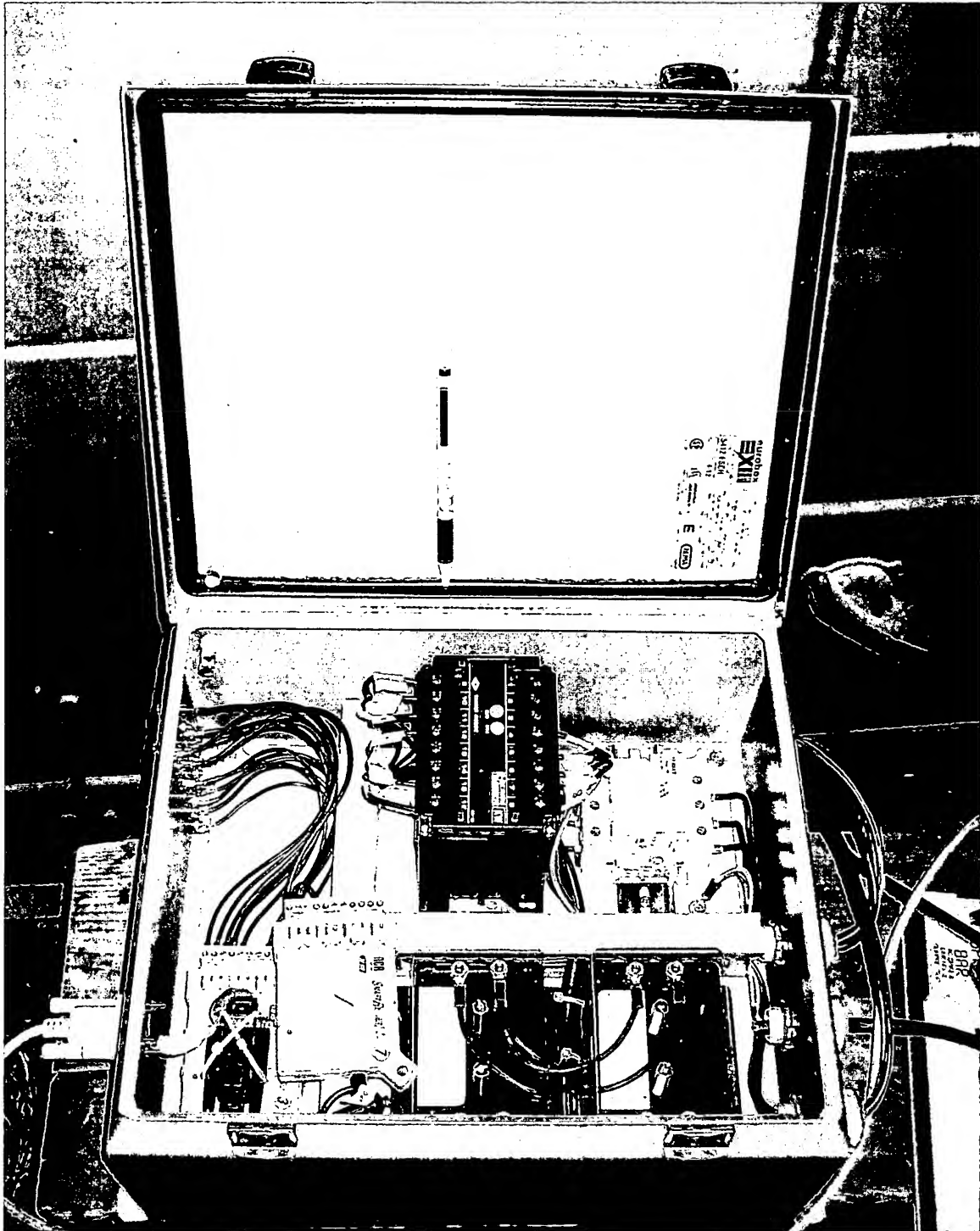


FIGURE 3:

GLOWE-TECH Tonnage Analyzer – Portable model with 2 Data Loggers capable of monitoring up to a total of 14 conveyor motors

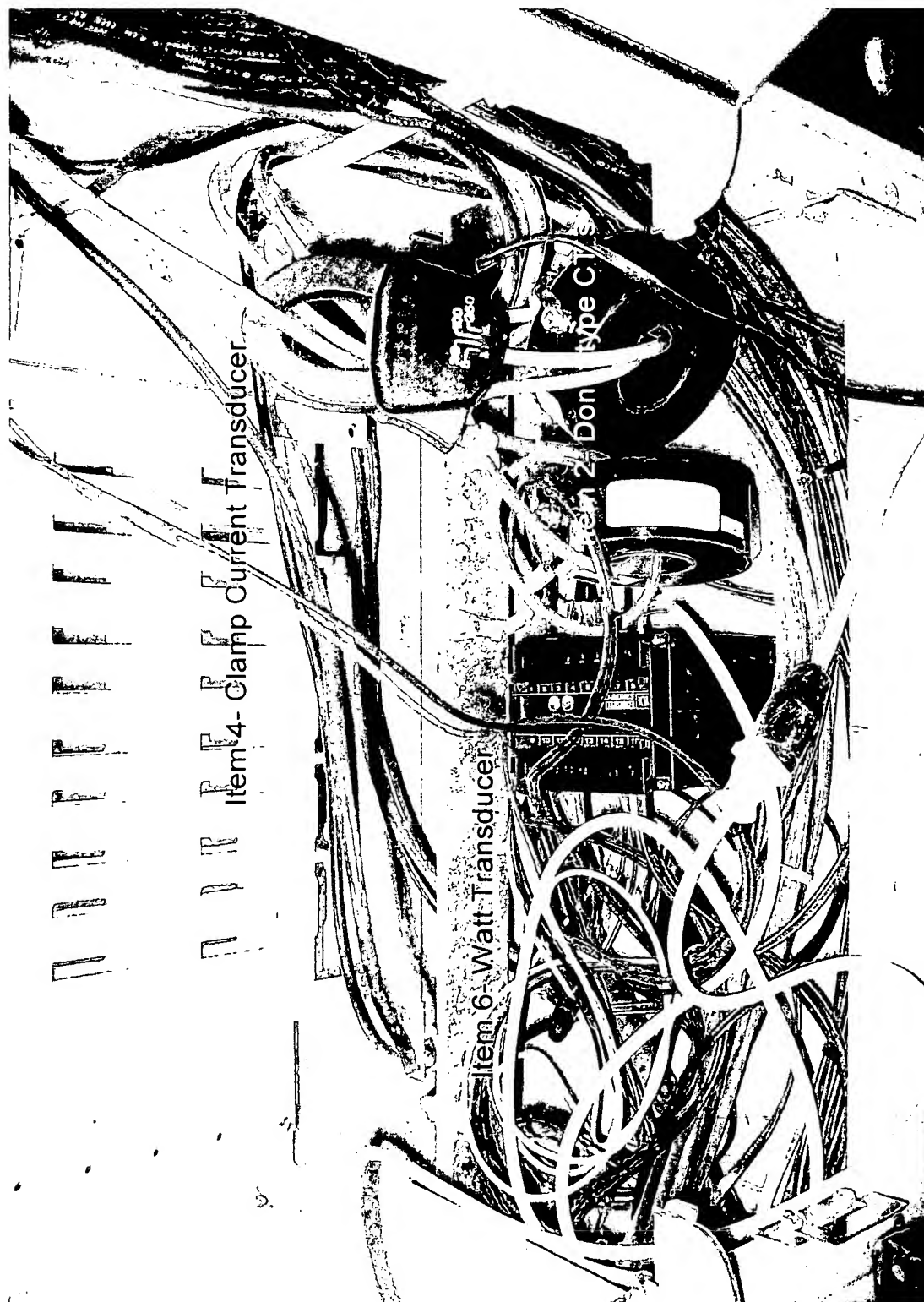


FIGURE 3b: Watt Transducer installation for Typical Conveyor Motor showing Clamp CT installed too

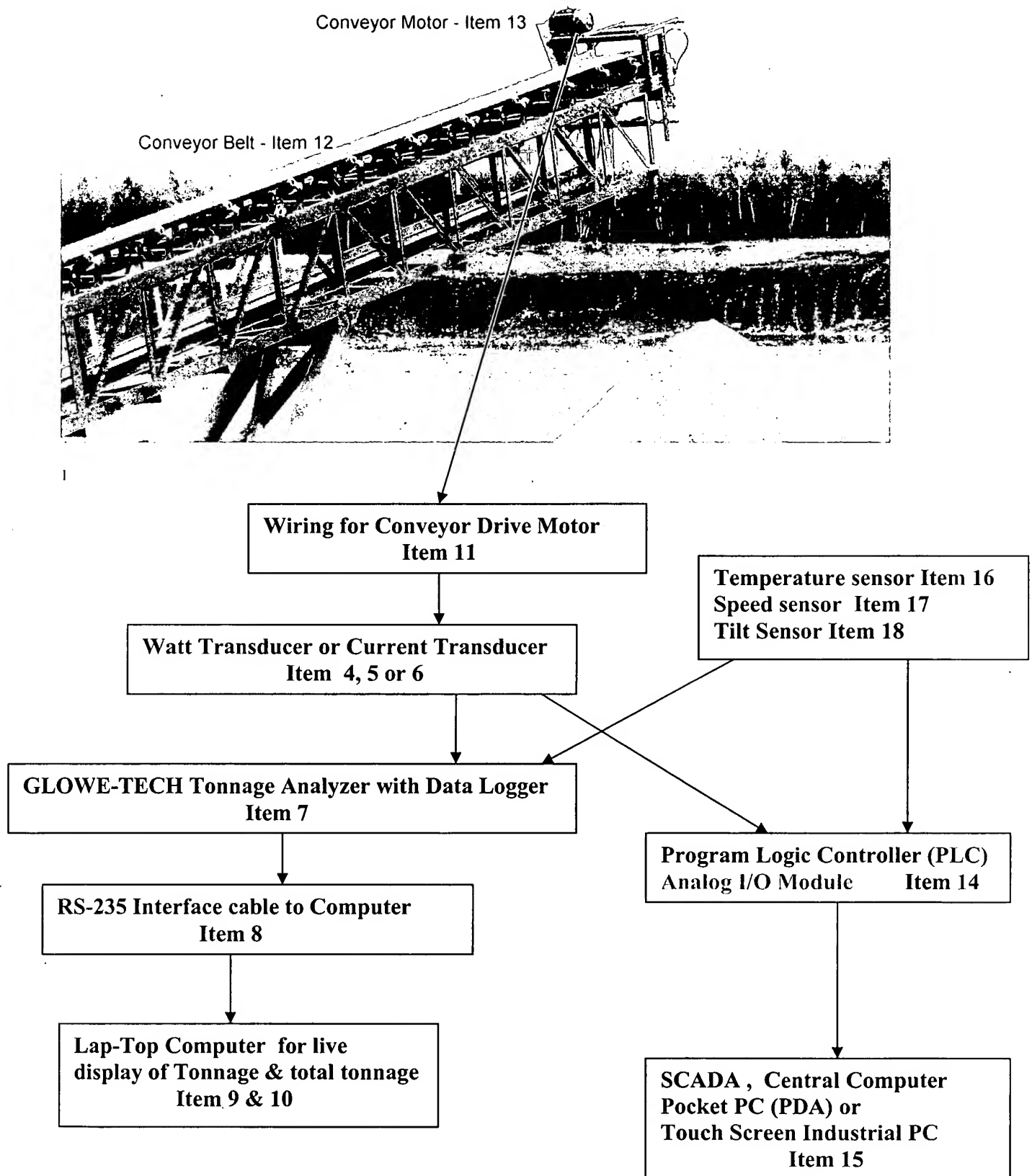


FIGURE: 4 Schematic of Typical Conveyor Belt Motor Tonnage Conversion

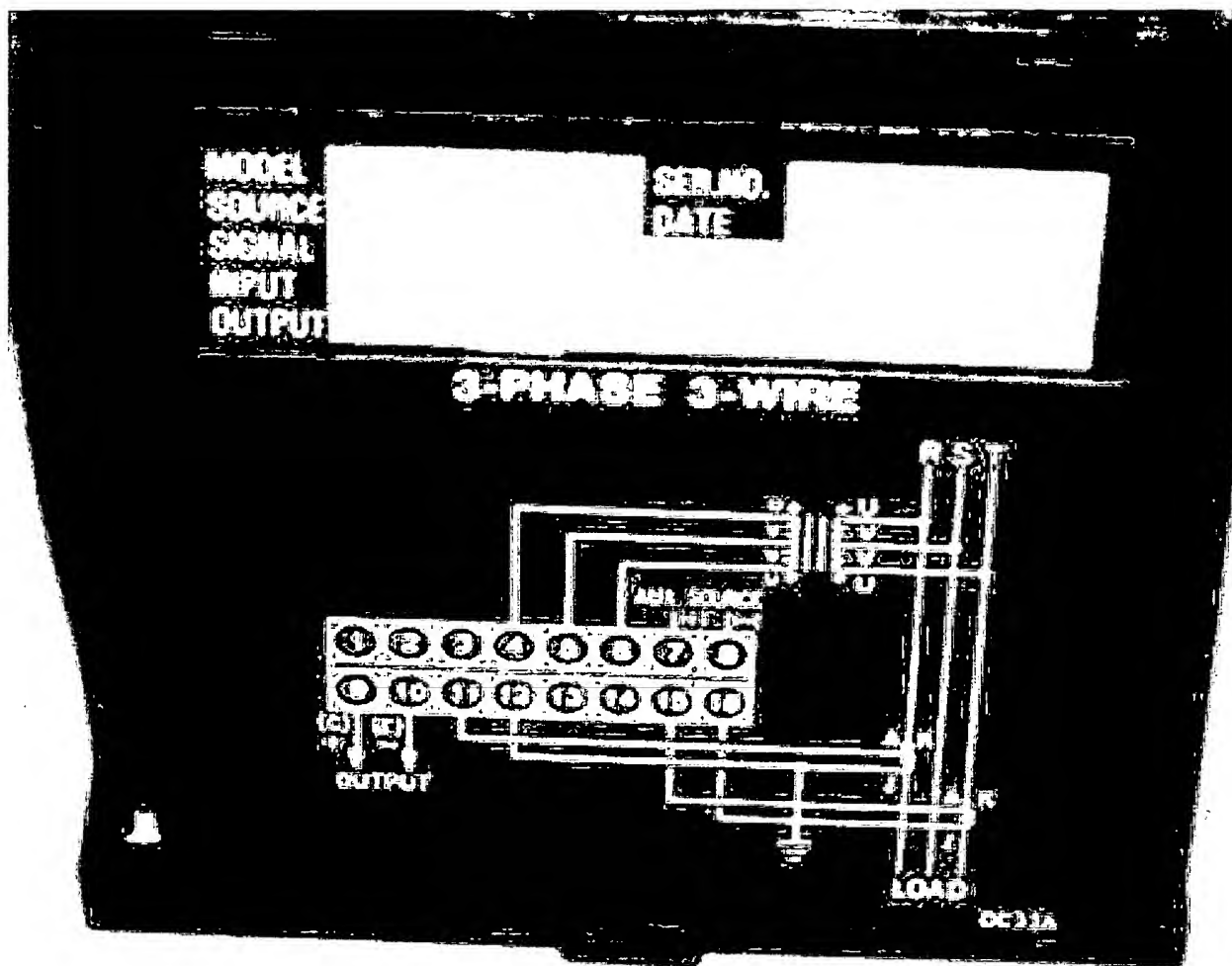
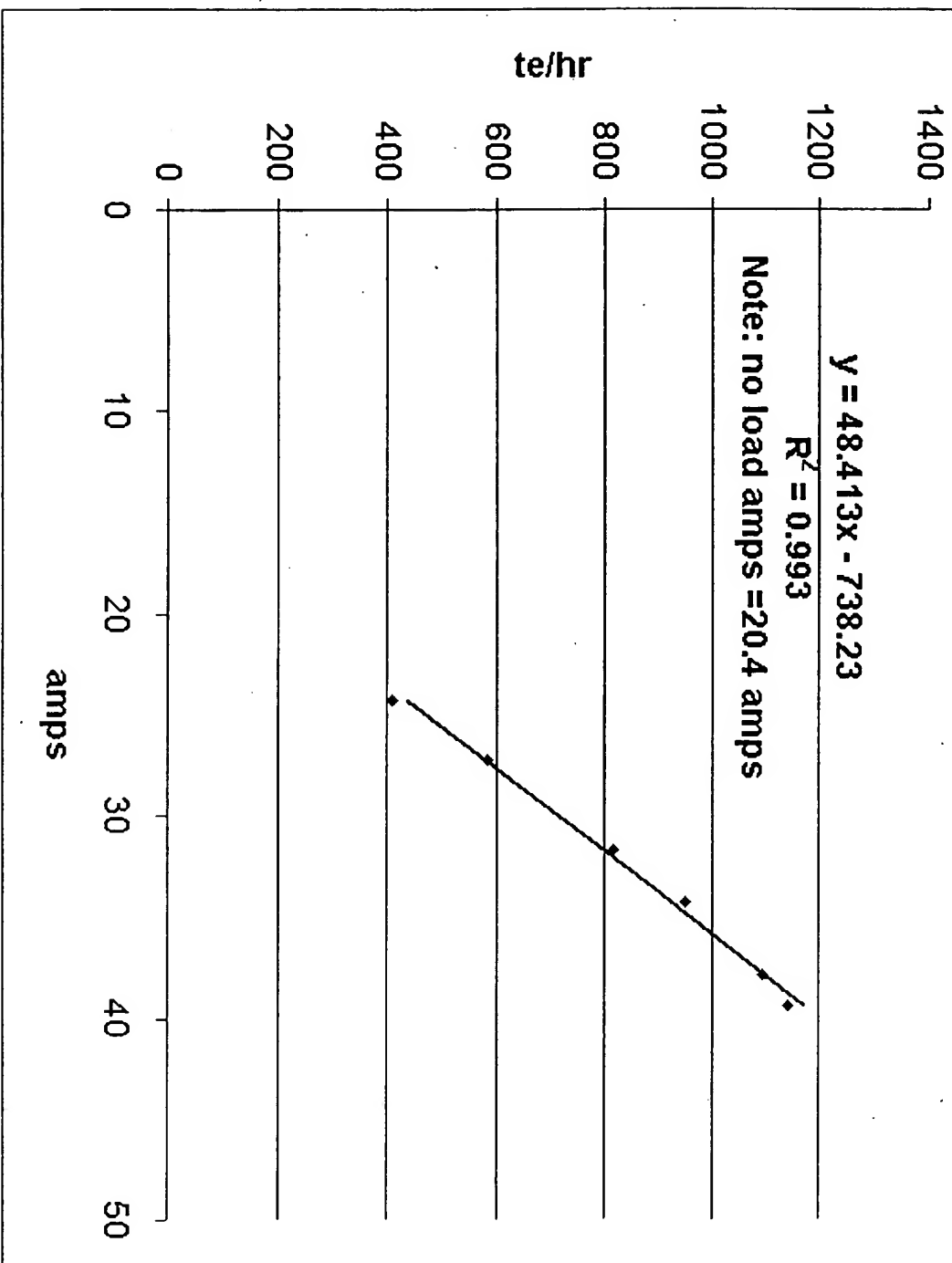


FIGURE: 5

GLOWE-TECH Typical wiring diagram for Watt Transducer

Graph amps to tonnes Figure: 6



Kwatts to tonnes Figure 7

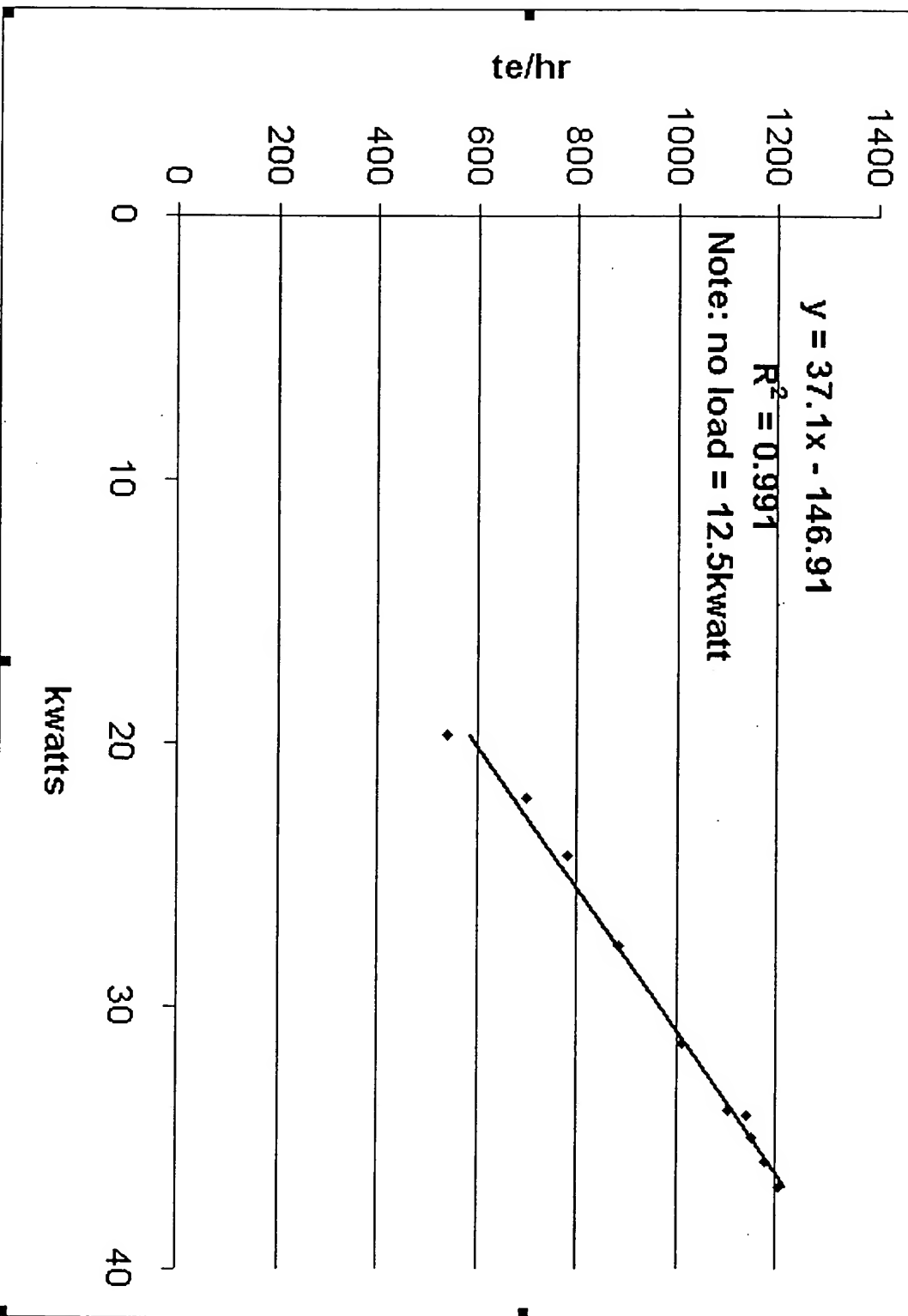


FIGURE: 8

Summary of Tonnage for Typical Conveyor using kwatts to tonnes

Date	Truck Count	actual Belt Scale tonnes	Corrected Belt Scale tonnes	kwatts conversion to tonnes	difference tonnes	amps conversion to tonnes	difference tonnes
April 15,02	126	6474.10	6474.10	6470.914	3.19	0	0
April 16,02	185	9552.40	9552.40	9404.079	148.32	9676.29	-123.89
April 17,02	145	7730.90	7730.90	7499.33	231.57	7753.309	-22.41
April 18,02	180	9451.50	9539.50	9412.356	127.14	9638.428	-98.93
April 19,02	166	8560.00	8665.00	8553.628	111.37	8737.455	-72.45
April 22,02	173	9138.00	9386.15	9447.105	-60.96	9465.383	-79.24
April 23,02	197	10453.00	10692.49	10717.322	-24.84	10323.369	369.12
April 24,02	159	7982.00	7982.00	8125.574	-143.57		
April 25,02	163	3705.00	3738.90	3773.876	-34.98		
April 26,02	164	8537.00	8757.00	8933.782	-176.78		
April 29,02	149	8150.00	8346.70	8418.175	-71.47		
April 30,02	156	8272.00	8482.00	8504.899	-22.90		
May 1,02	191	9901.00	10123.00	10138.142	-15.14		
May 2,02		10552.90	10758.00	10777.447	-19.45		
TOTAL		118459.80	120228.13	120176.629	51.50		

NOTE: Belt Scale tonnage was corrected for tonnage being added from April 18 to April 24th then taking off tonnage due to removal of rock end April 24 which had fallen on belt scale

NOTE: Apr 24 to May 2 scale was taking tonnes from scale display at 15 to 25 te/hr

NOTE:kwatt calibration formula used as per graph is $37.1x - 146.91$ for all readings April 15 to May 2

NOTE: Amp calibration formula used as per graph is $48.413x - 738.13$ for all readings

FIGURE 8b

Comparison Table showing difference in GLOWE-TECH Analyzer Readings with Milltronics Belt Scale Readings

Date	Operating Time hours	No-Load time hours	Start-Up time hours	Production time-hours	Milltronics tonnes	GT Analyzer tonnes	Difference tonnes	difference %
06-May-02	7.367	1.813	0.064	5.490	2830.000	2769.730	60.270	2.13
07-May-02	10.930	2.176	0.196	8.558	4374.000	4377.165	-3.165	-0.07
08-May-02	7.117	1.796	0.027	5.294	2791.000	2776.820	14.180	0.51
09-May-02	6.830	1.187	0.116	5.527	3119.500	3096.503	22.997	0.74
10-May-02	10.650	1.242	0.044	9.364	4494.000	4531.777	-37.777	-0.84
13-May-02	10.430	7.158	0.007	3.265	1845.900	1888.235	-42.335	-2.29
14-May-02	8.817	5.402	0.031	3.384	1866.000	1866.000	0.000	0.00
15-May-02	10.867	1.502	0.080	9.285	4659.000	4680.243	-21.243	-0.46
16-May-02	11.033	2.380	0.011	8.642	4563.000	4582.861	-19.861	-0.44
17-May-02	9.067	1.620	0.009	7.438	3799.000	3761.421	37.579	0.99
20-May-02	8.967	1.389	0.009	7.569	3792.000	3791.384	0.616	0.02
21-May-02	10.883	1.778	0.009	9.096	4226.000	4199.993	26.007	0.62
22-May-02	10.750	1.620	0.138	8.992	3925.000	3921.740	3.260	0.08
23-May-02	7.880	1.311	0.009	6.560	3261.000	3206.395	54.605	1.67
TOTAL					49545.400	49450.267	95.133	

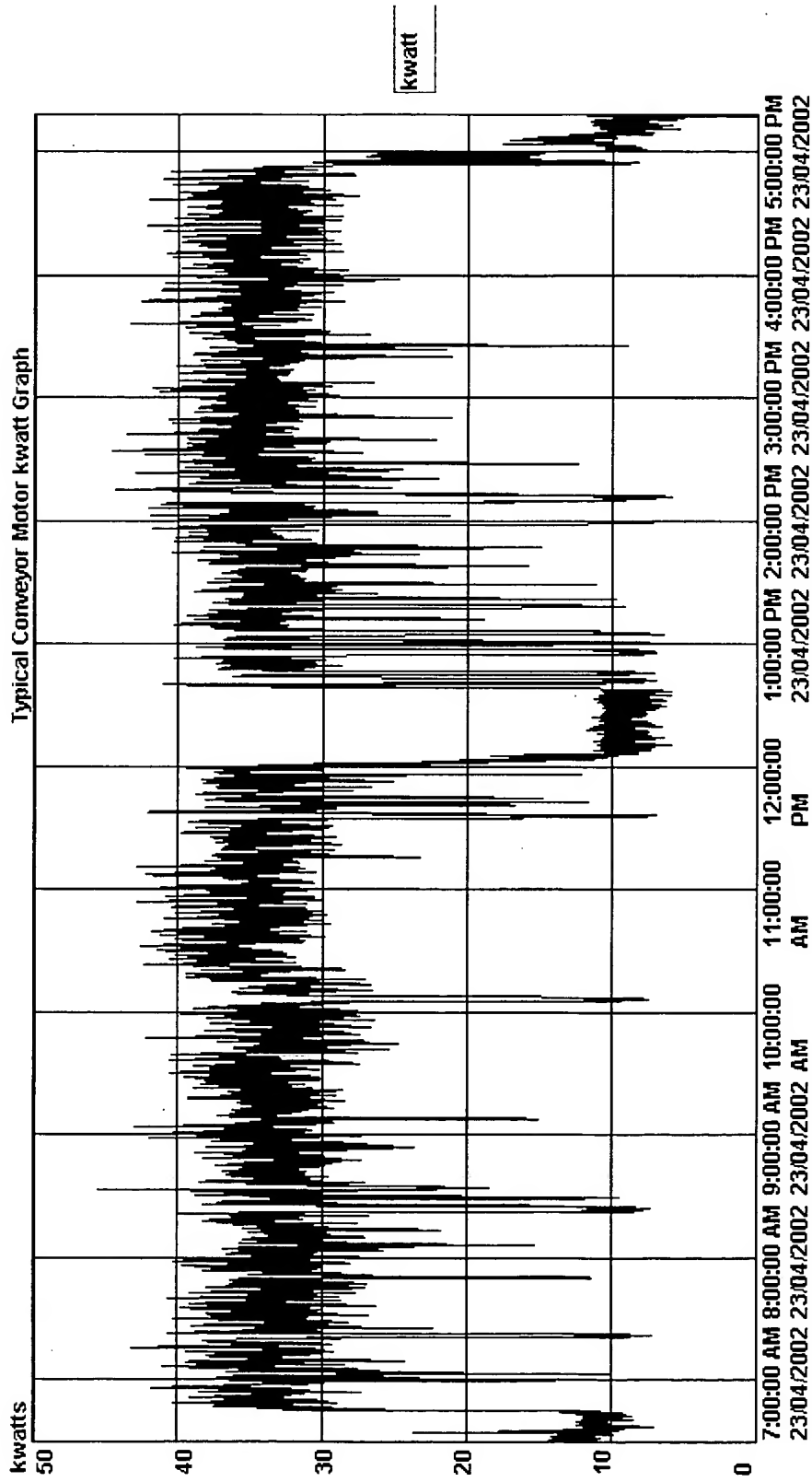


FIGURE: 9 kilowatt graph

FIGURE 10

TYPICAL Quarry Kwatts Converted to Tonnage Summary report

Temperature am	10.000	Degrees Celcius				
Temperature pm	17.000	Degrees Celcius				
No load kwatt =	13.600					
Start up kwatts =	21.000					
Time No-Load kwatt	134.533	minutes				
Time Start-Up kwatts	1.067	minutes				
Total Production time	11.676	hours				
Average kwatt for day	17.308	kwatts				
Average Tonnage by formula	555.233	te/hr				
Actual Scale Reading	5263.000	tonnes				
Total tonnage by GT analyzer = difference	5237.943	tonnes				
	-25.057					
	5237.696	tonnes totalized				
	-25.3040	tonnes				
Time of data Reading	Actual Kwatt Reading	Count No-Load	Count Over-load	Conditioned kwatt	tonnes/hour on conveyor	Tons/hr on conveyor
28/02/2003 6:00:05	0.1464615	1	0	0		
28/02/2003 6:00:13	0.1708718	1	0	0		
28/02/2003 6:00:21	0.1464615	1	0	0		
Break						
28/02/2003 17:39:17	17.45333	0	0	17.453	564.102	1.254
28/02/2003 17:39:25	17.89272	0	0	17.893	590.888	1.313
28/02/2003 17:39:33	17.25805	0	0	17.258	552.198	1.227
28/02/2003 17:39:41	17.33128	0	0	17.331	556.662	1.237
28/02/2003 17:39:49	17.136	0	0	17.136	544.758	1.211
28/02/2003 17:39:57	15.57374	0	0	15.574	449.521	0.999
28/02/2003 17:40:05	14.7682	0	0	14.768	400.414	0.890
28/02/2003 17:40:13	14.42646	0	0	14.426	379.581	0.844
28/02/2003 17:40:21	13.66974	0	0	13.670	333.451	0.741
28/02/2003 17:40:29	13.03508	1	0	0		

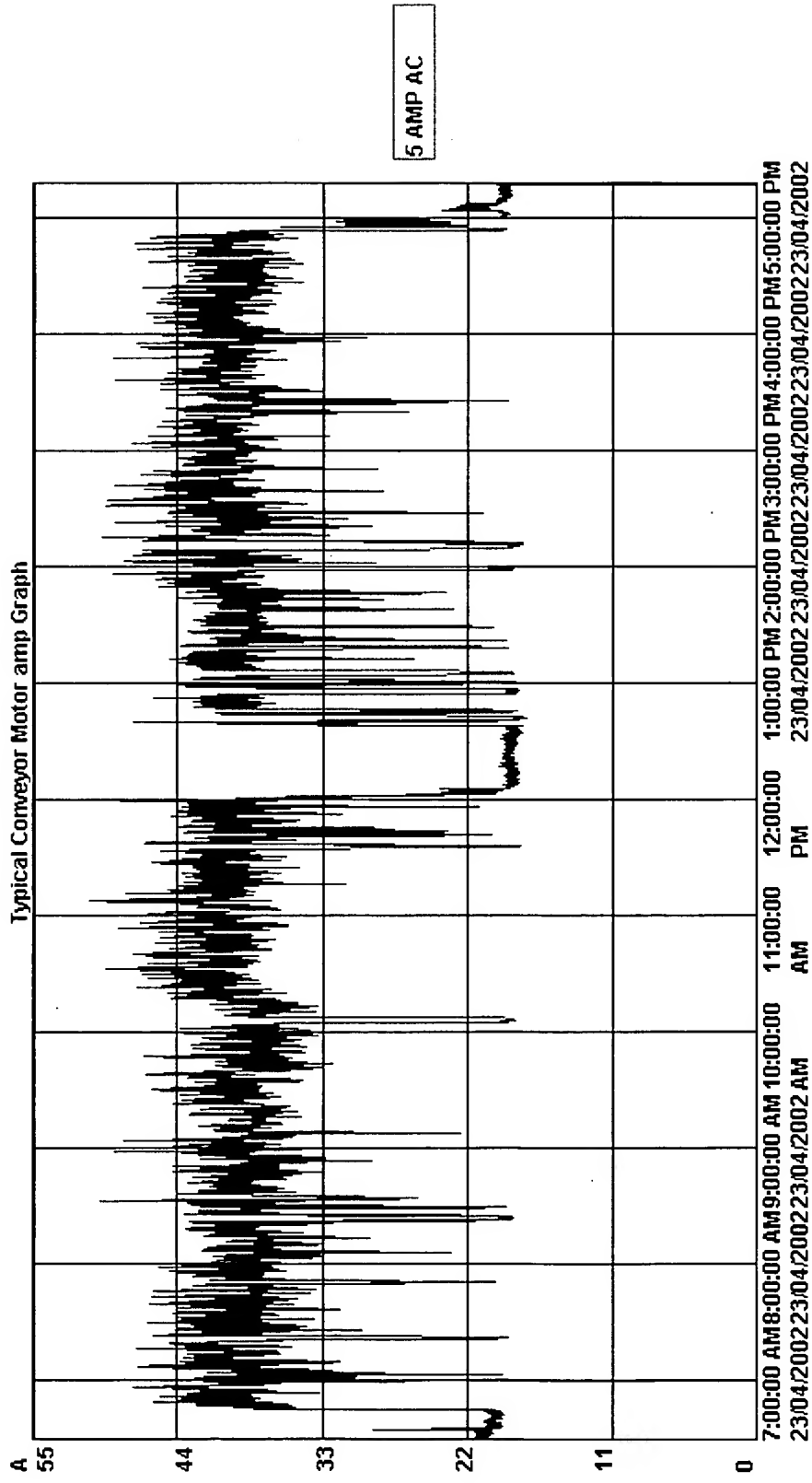


FIGURE: 11 ampere Graph

TYPICAL Quarry Amps to tonnage Summary Feb 12, 2003

FIGURE 12

Temperature	am	9.000	degrees C
Temperature	pm	15.000	degrees C
No load current = 25.000			
Start up current = 80.000			
Time no load amps	69.33 minutes	1.156 hours	
Time at start-up amps	5.87 minutes	0.098 hours	
Total Recording Time	11.709 hours	10.553	total hr production
Average current for day =	66.787	amps	
Average Tonnage by formula =	496.592	tonnes	
Total tonnes by Instrument	5240.756	tonnes	
Total tonnes by scale	5184.000	tonnes	
Difference	-56.756 tonnes		
			5240.7003 tonnes totalized
			-56.700 tonnes
Count >			
Time of reading	Actual Amps	Count no load	Count no startup Amps
12/02/2003 6:00:04	20.30774	1	0
12/02/2003 6:00:12	20.26378	1	0
12/02/2003 6:00:20	20.26378	1	0
BREAK			
12/02/2003 17:41:00	60.22648	0	0
12/02/2003 17:41:08	59.25929	0	0
12/02/2003 17:41:16	60.71008	0	0
12/02/2003 17:41:24	60.00667	0	0
12/02/2003 17:41:32	56.31374	0	0
12/02/2003 17:41:40	52.79667	0	0
12/02/2003 17:41:48	46.77369	0	0
12/02/2003 17:41:56	42.99284	0	0
12/02/2003 17:42:04	37.45346	0	0
12/02/2003 17:42:12	32.52956	0	0
12/02/2003 17:42:20	27.60566	0	0
12/02/2003 17:42:28	24.57219	1	0
			Tons/hr on conveyor
			0.9533
			0.9311
			0.9644
			0.9482
			0.8637
			0.7831
			0.6451
			0.5585
			0.4317
			0.3189
			0.2061
			428.974
			419.006
			433.959
			426.709
			388.646
			352.395
			290.316
			251.347
			194.253
			143.502
			92.752

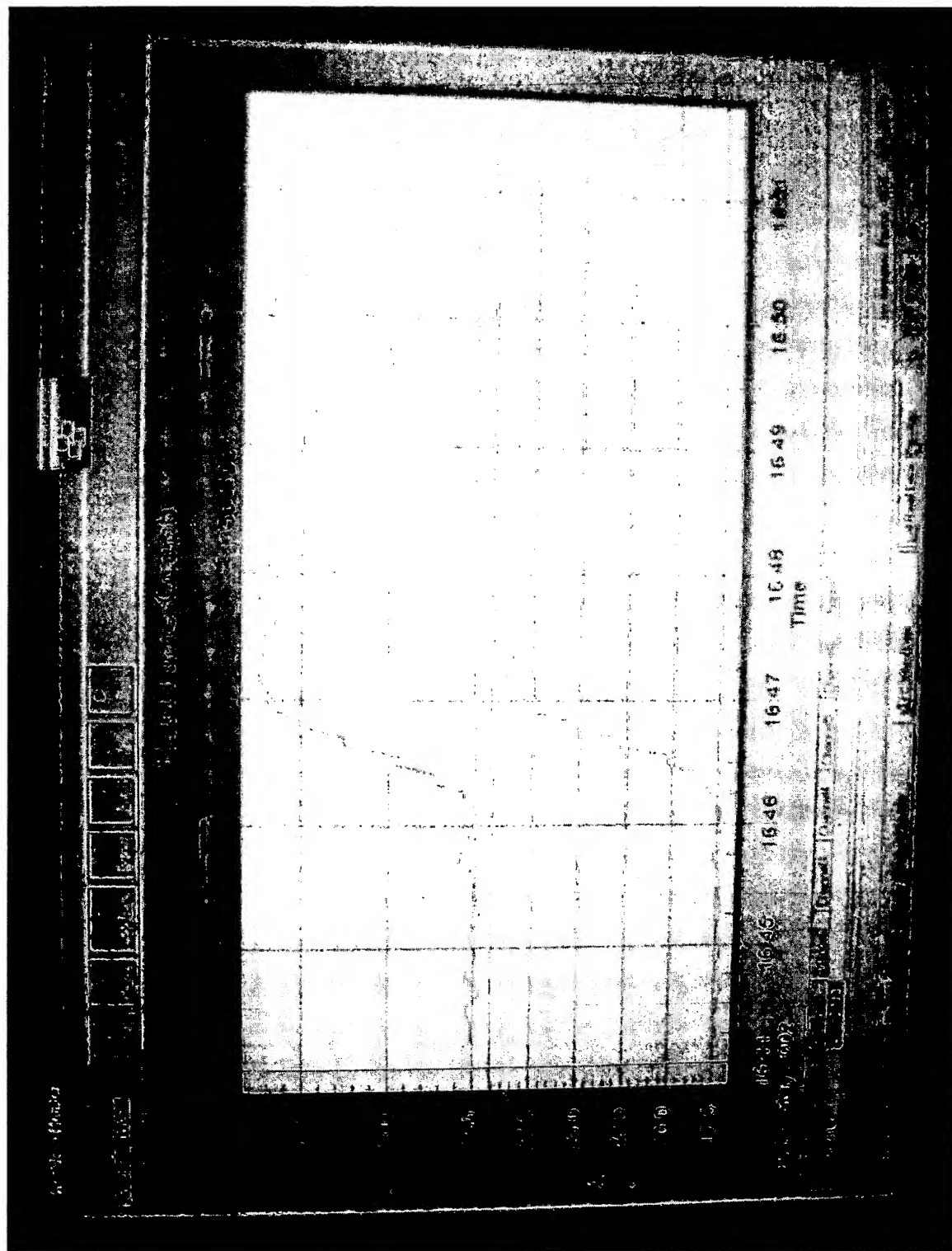


FIGURE 13a: - Typical Real Time Graph showing te/hr converted from Watt Transducer and a Real Time Graph of Amperage readings from the same Conveyor motor for parallel conversion to Tonnage for demonstration purposes.

[illegible]

Figure 13b Typical Daily Summary Table with Stable No-Load reading

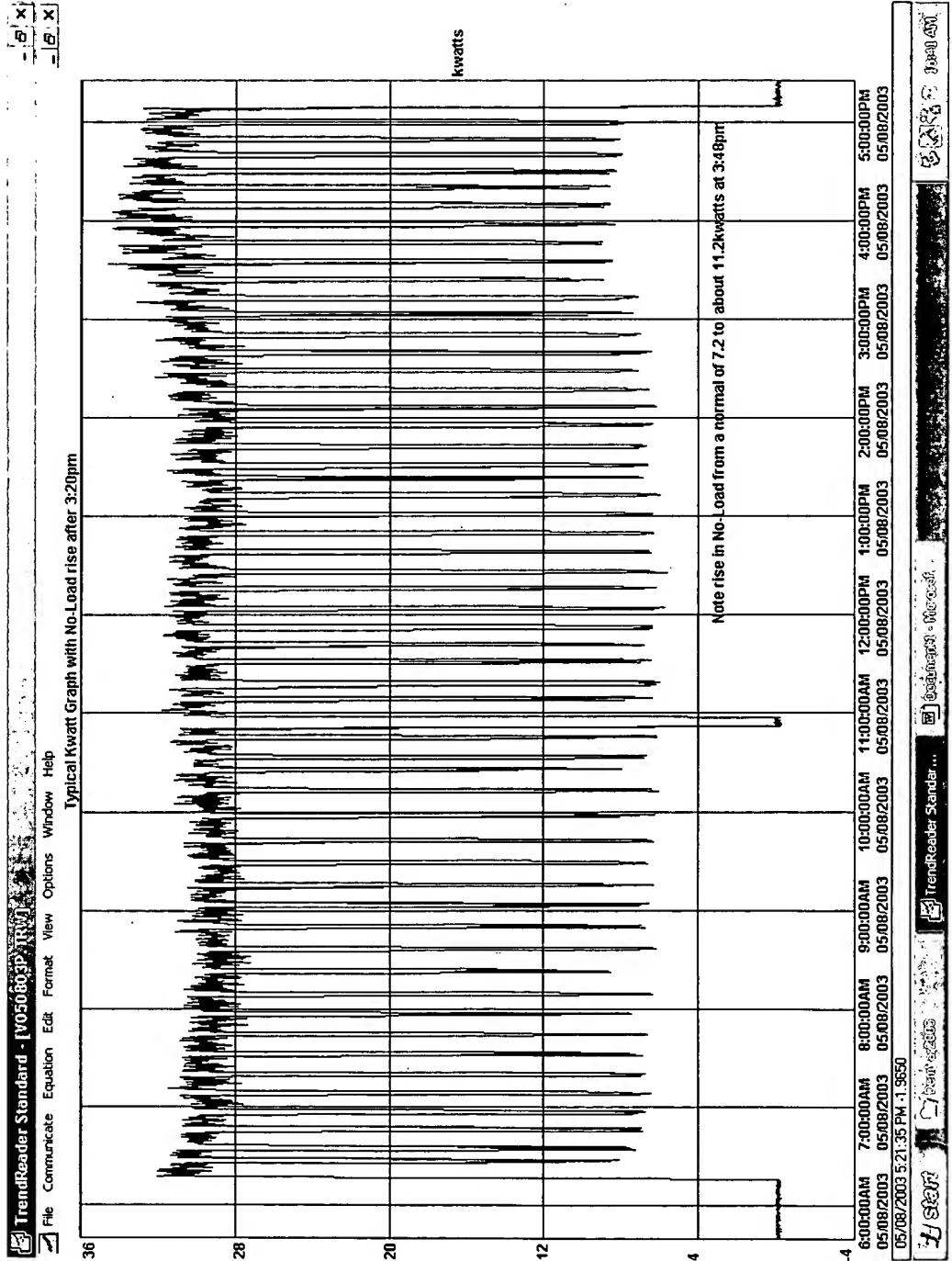


FIGURE 13d Typical Kilowatt Graph showing effect of change in No-Load caused by Friction on return side of Conveyor

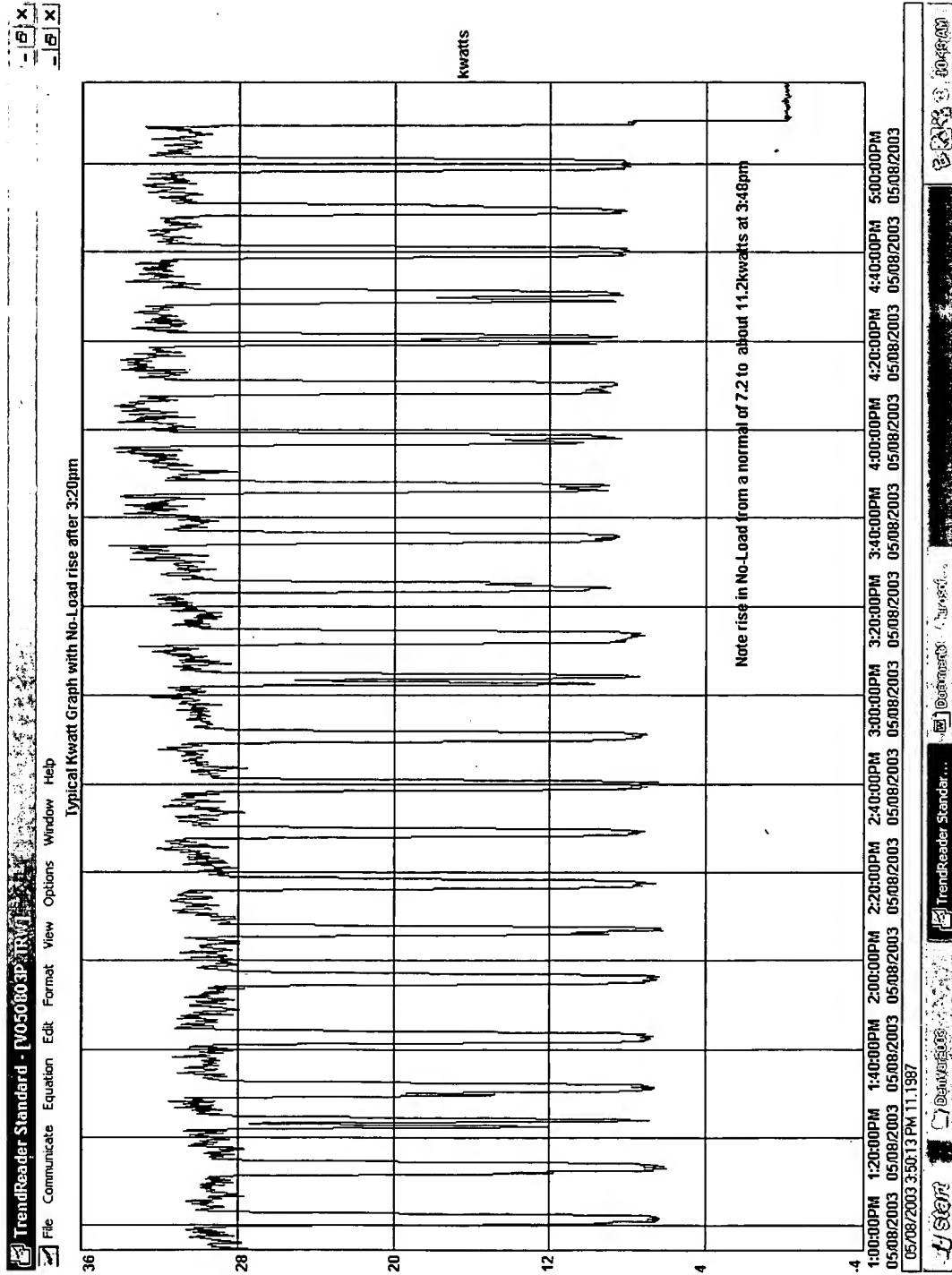


Figure 13e Enlarged view of change in No-Load readings caused by friction on Return Conveyor belt

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Figure 13f Typical Daily summary with No-Load Adjustment												
1	Calibration Formulas											
2	601.908 Ideal Formula Number											
3	639.613 Aug-18											
4	683.630 Sep-15											
5	706.915 Jun 20,03											
6	currently used											
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
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Figure 13f Daily Summary Showing Impact of No-Load Adjustment due to dirt build up at 3:20pm

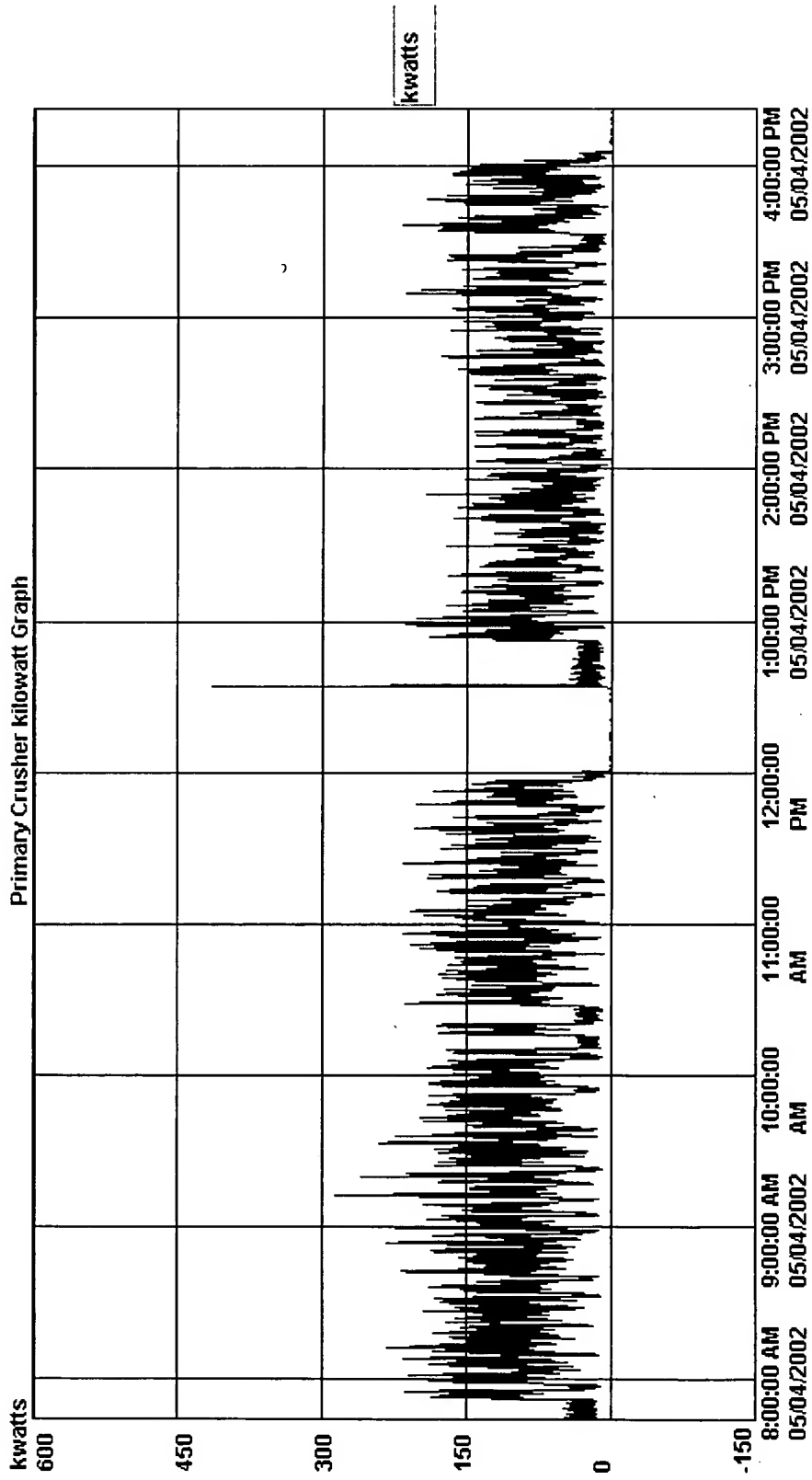


Figure 14: Typical Primary Crusher Graph

FIGURE 15

Typical Primary Crusher kwatt report April 5, 2002

No load kwatt =	30.000 kwatts
Start up kwatts =	410.000 kwatts
Time No-Load kwatt	144.400 minutes
	2.407 hours
Time Start-Up kwatts	0.133 minutes
	0.002 hours
Total production time 10 hrs 23 min	10.383 hours
	7.974 hours actual
Total tonnes on Primary Conveyor Belt Scale	7713.0 tonnes
Average kwatt for day	91.785
Total kwatts crushing	731.906 kwatts
Total te/kwatt crushed	10.538 te/kwatt

Time of data Reading	Actual Kwatt Reading	Count No-Load	Count Over-load	Conditioned kwatt
05/04/2002 7:24:33	0.811	1	0	
05/04/2002 7:24:41	4.358	1	0	
05/04/2002 7:24:49	1.520	1	0	
05/04/2002 7:24:57	0.811	1	0	
05/04/2002 7:25:05	0.811	1	0	
05/04/2002 7:25:13	2.027	1	0	
05/04/2002 7:25:21	2.939	1	0	
05/04/2002 7:25:29	3.851	1	0	
05/04/2002 7:25:37	2.230	1	0	
05/04/2002 7:25:45	3.243	1	0	
05/04/2002 7:25:53	1.317	1	0	
05/04/2002 7:26:01	2.331	1	0	
05/04/2002 7:26:09	2.939	1	0	
05/04/2002 7:26:17	1.013	1	0	
05/04/2002 7:26:25	0.811	1	0	
05/04/2002 7:26:33	1.926	1	0	
05/04/2002 7:26:41	2.534	1	0	
05/04/2002 7:26:49	1.115	1	0	
05/04/2002 7:26:57	0.811	1	0	
05/04/2002 7:27:05	0.811	1	0	
05/04/2002 7:27:13	0.811	1	0	
05/04/2002 7:27:21	0.811	1	0	
05/04/2002 7:27:29	4.155	1	0	
05/04/2002 7:27:37	0.709	1	0	
05/04/2002 7:27:45	0.811	1	0	
05/04/2002 7:27:53	0.811	1	0	
05/04/2002 7:28:01	0.709	1	0	
05/04/2002 7:28:09	0.709	1	0	
05/04/2002 7:28:17	3.952	1	0	
05/04/2002 7:28:25	2.736	1	0	
05/04/2002 7:28:33	0.811	1	0	
05/04/2002 7:28:41	389.056	0	0	389.056
05/04/2002 7:28:49	53.306	0	0	53.306
05/04/2002 7:28:57	55.739	0	0	55.739
05/04/2002 7:29:05	51.178	0	0	51.178
05/04/2002 7:29:13	41.247	0	0	41.247

TYPICAL QUARRY_Kwatts Tonnage report Apr 3, 2003 With TEMPERATURE Effect

[illegible]

Figure 21 PDA & Analog Data Logger wiring hook-up

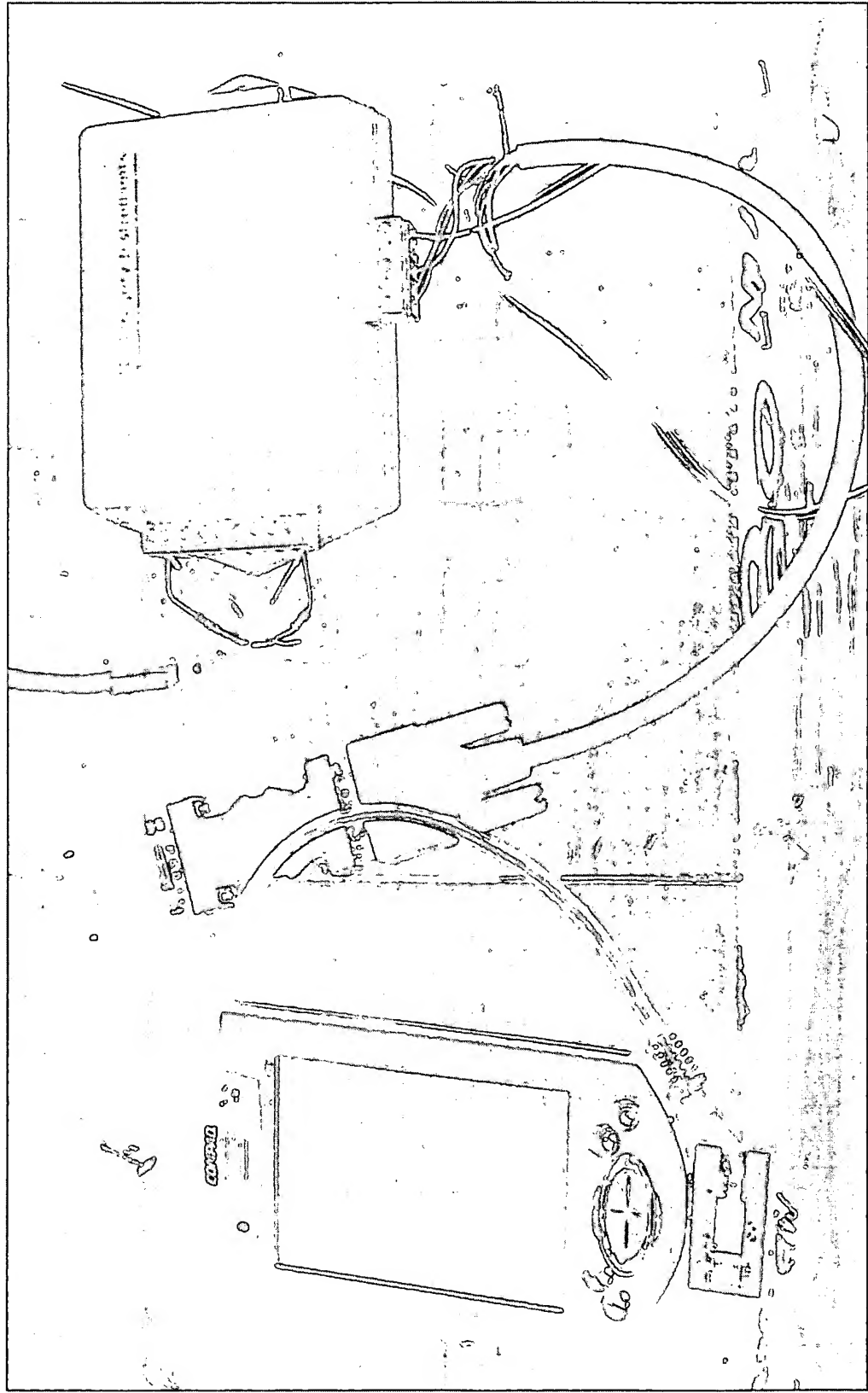
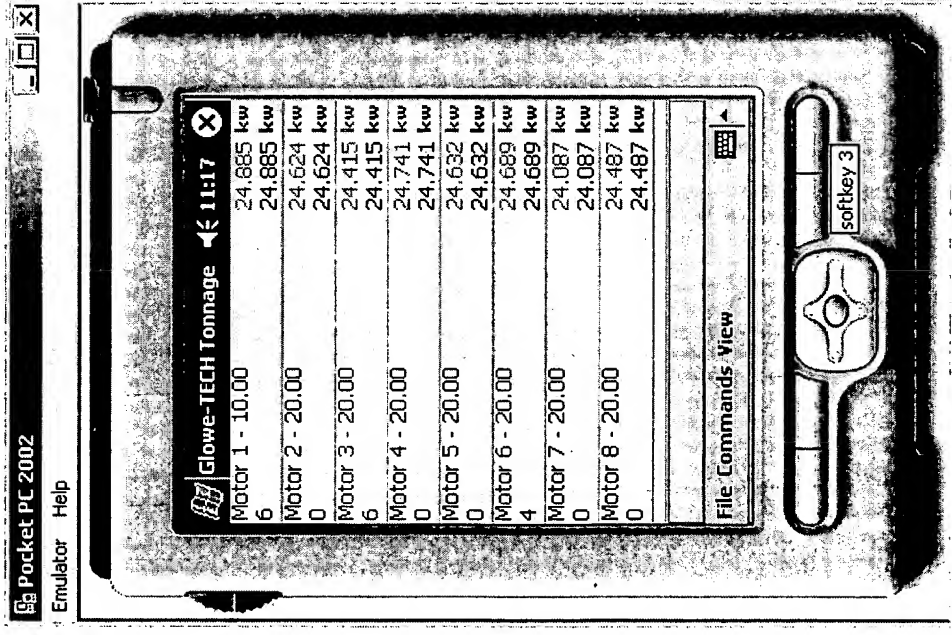
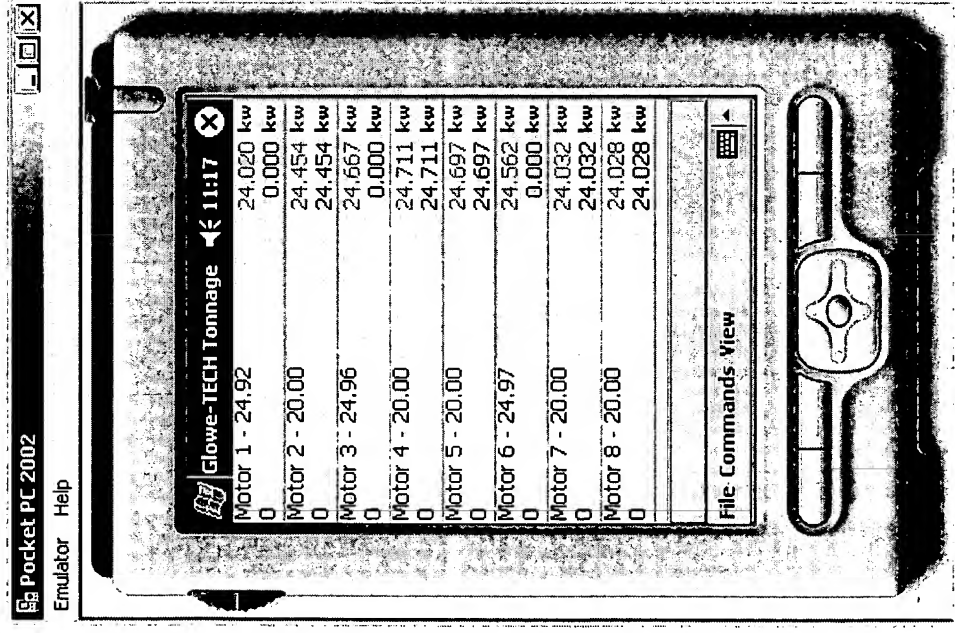


Figure 23 PDA Tonnage Analyzer



- Motor view with kwatt values and a zero test in progress for motors 1, 3, and 6. Zero test will confirm no-load operating conditions and any changes will be automatically incorporated in calibration formula.

Figure 24 PDA Tonnage Analyzer



- Motor view with kwatt values and finished zero tests with new No-load values for motors 1, 3, and 6. All future tonnage conversions will be based on new No-Load values.

Figure 25 PDA Tonnage Analyzer

- Daily Summary Report including Total tonnage, Production time, No-Load time and new No-load calibration value.

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Start 11/09/03 12:27:28
End 11/09/03 12:43:22

11/09/03

	Nom	Te Total	Temps de Production	Temps de NoLoad	NoLoad
CV 212		58.26376	00:14:12	00:01:40	24.91902
CV 213		57.84868	00:14:04	00:01:48	24.90978
CV 214		58.58227	00:14:16	00:01:36	24.95023

Microsoft Excel - Typical Cal Graph CV104 Sep 3, 03

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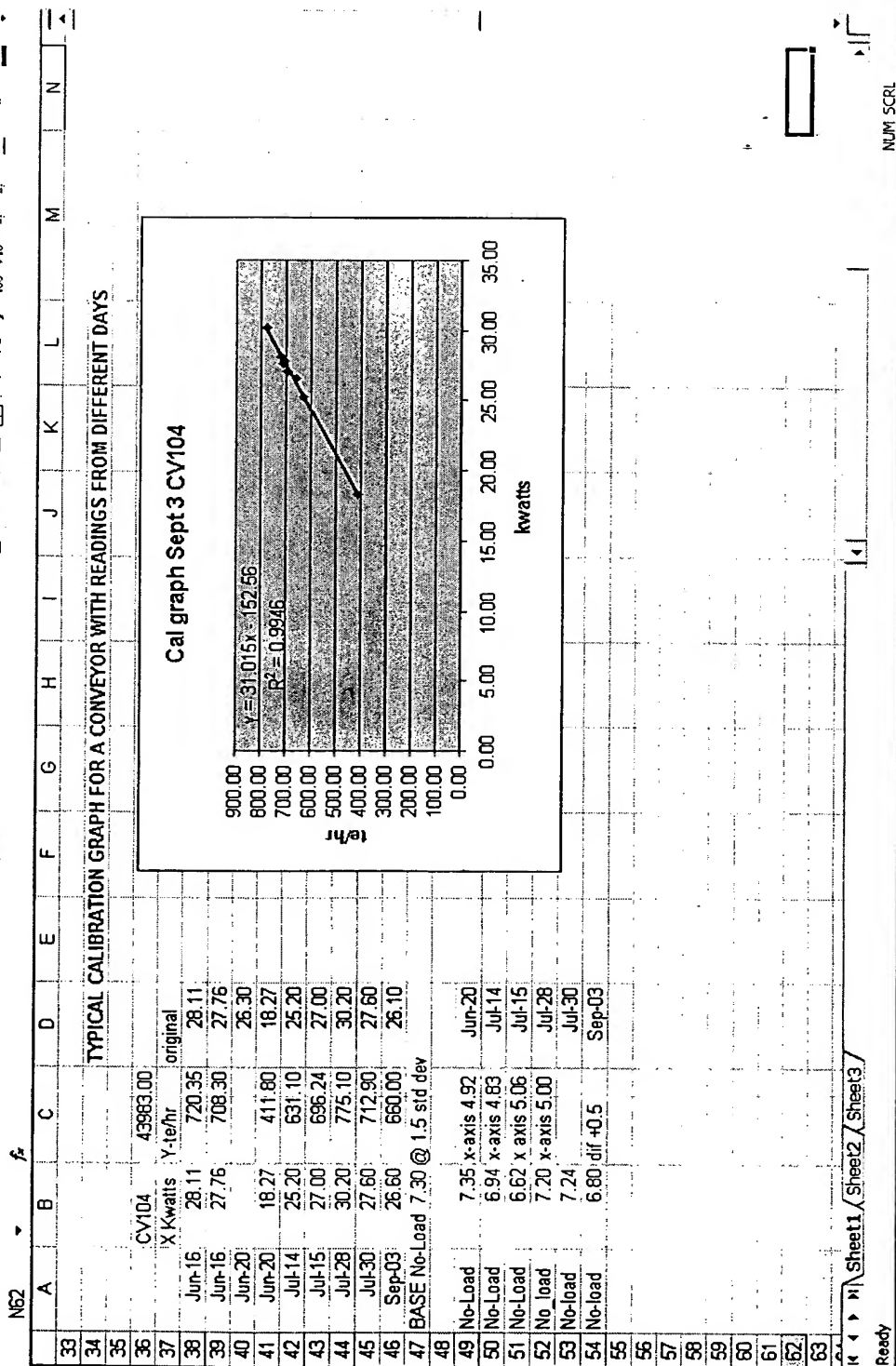


Figure 13c

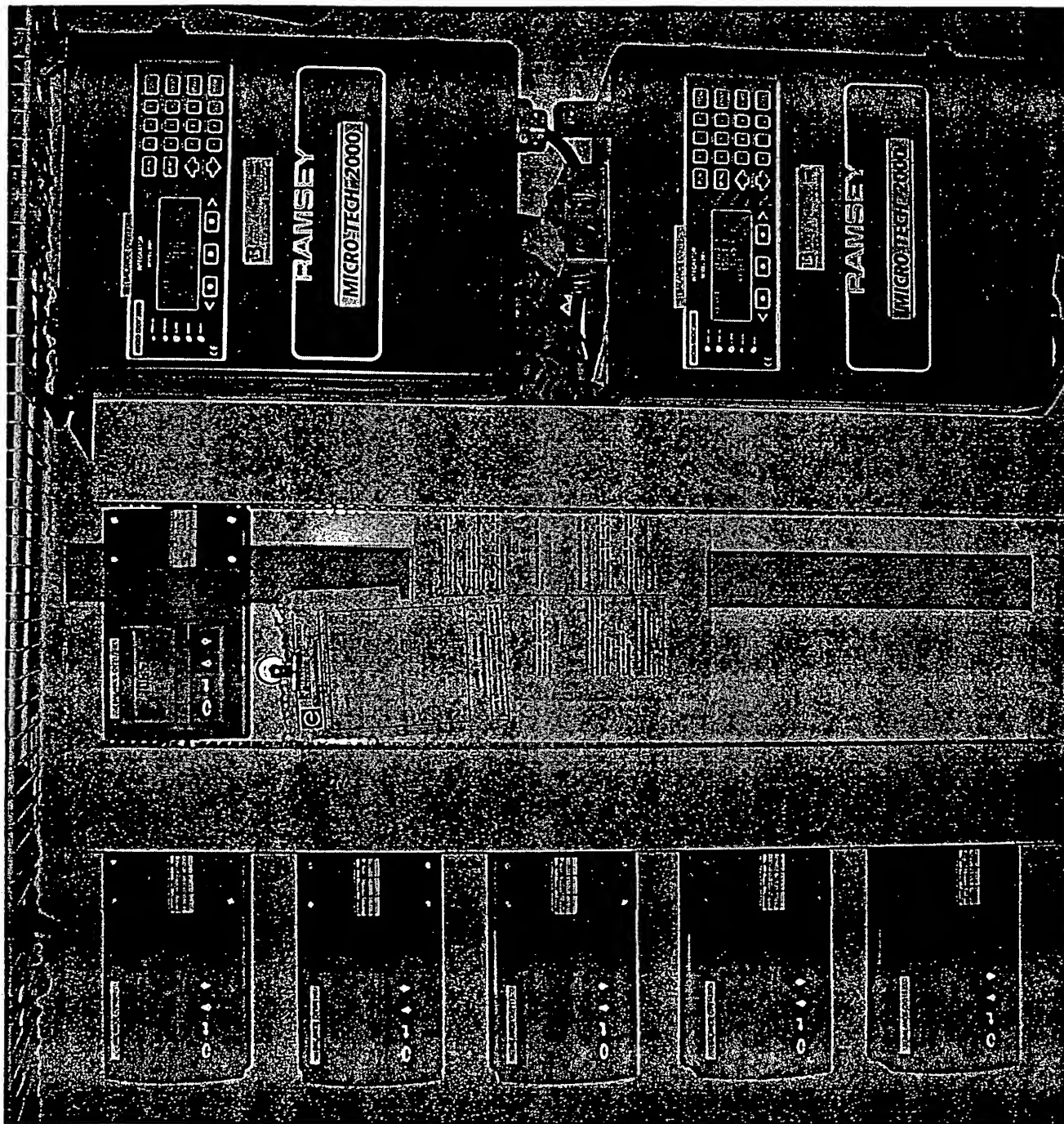


Figure 16a

Glowe-Tech Tonnage Analyzer

- Real Time Program showing total tonnage, tph, production time, and No-Load time values

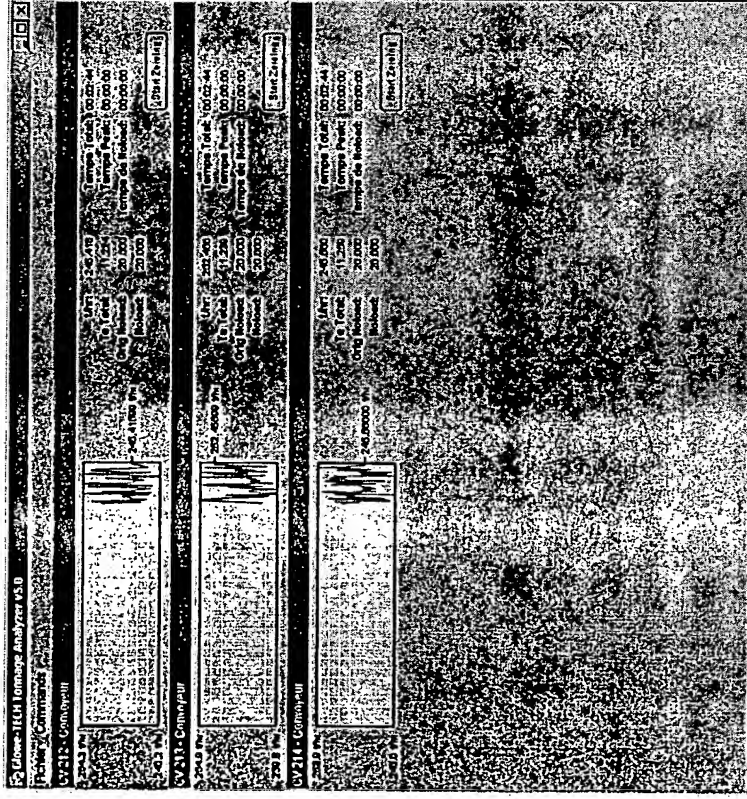


Figure 17

Glowe-Tech Tonnage Analyzer

- Zero test activated as shown in Red

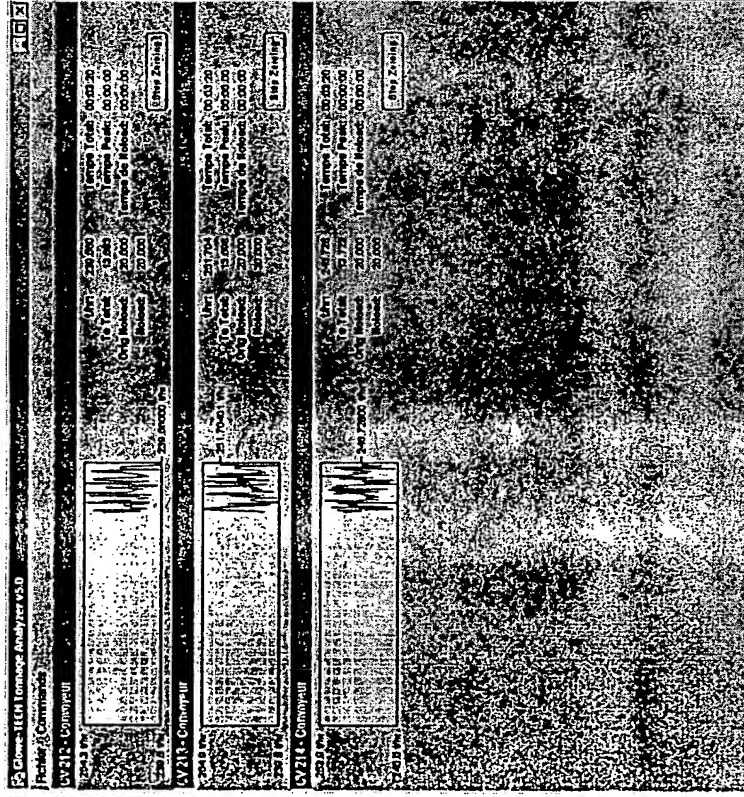


Figure 19

Glowe-Tech Tonnage Analyzer

- Running with tonnage values totaled and shown as tph, updated every second.

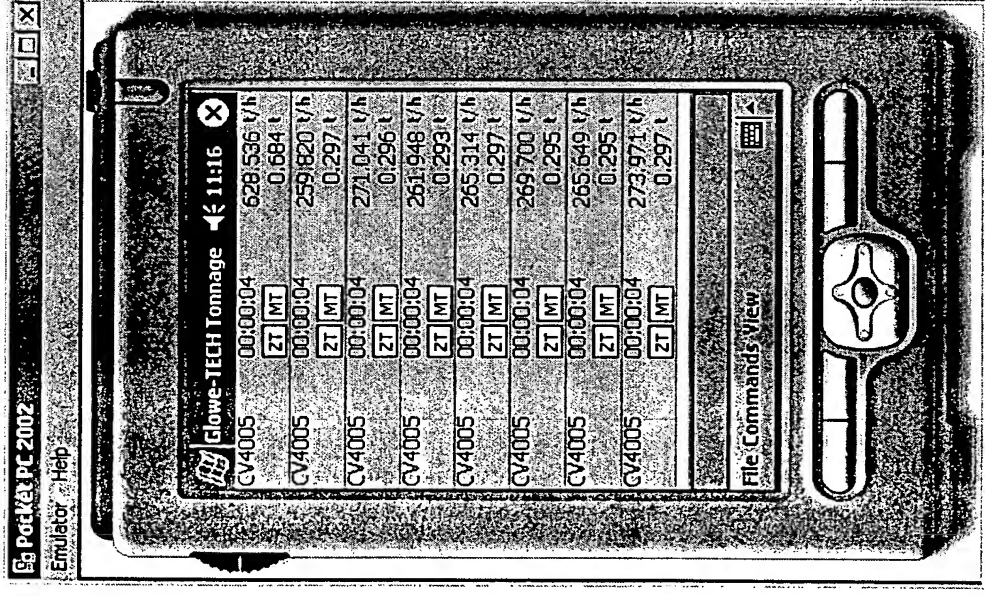


Figure 22

Glowe-Tech Tonnage Analyzer

- Program startup with graphic display of last 20 minutes of data in Real Time.

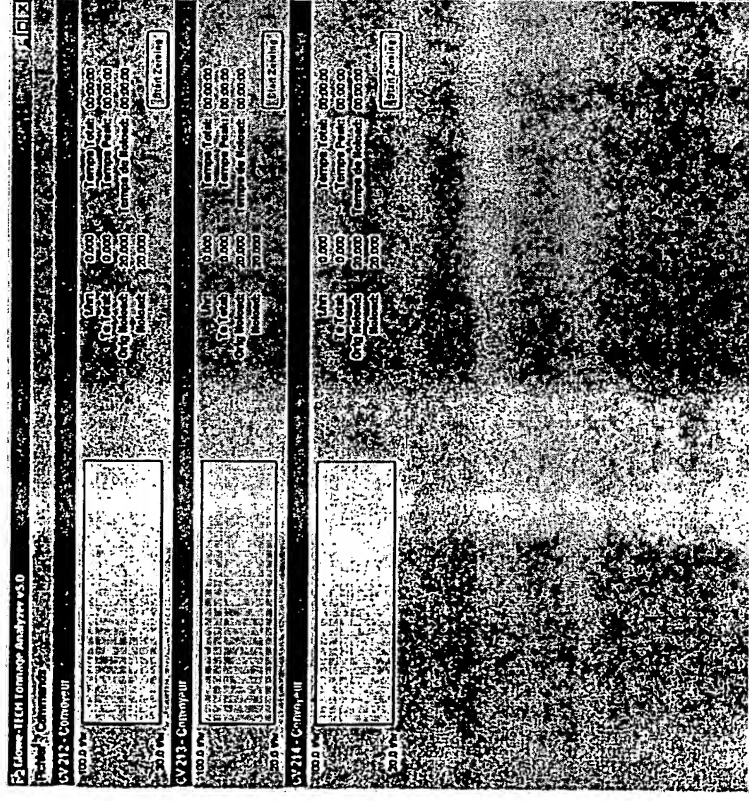


Figure 20

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